Open Geospatial Consortium Meteorology and Oceanography Domain Working Group progress report

Twelfth Workshop on Meteorological Operational Systems
ECMWF November 2009

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Co-chairs OGC Met Ocean DWG

What is the Open Geospatial Consortium : OGC ?

- **A non-profit international organization,**

- **Based on consensus from governments, private Industry, Academia, NGOs**

- **Committed to drive the development and promotion of open standards for geospatial information and location based services to ensure <u>interoperability</u>**

    Members collaborate to create open an extensible interfaces for software applications using geospatial technologies
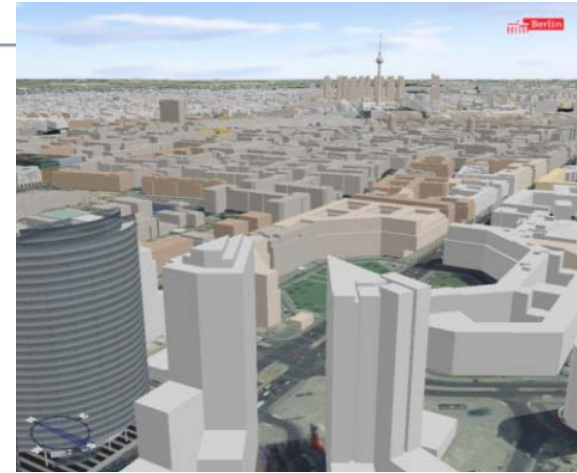
- **Founded in September 1994 by 8 founding members :**

    American Universities, Intergraph, PCI, Camber Corp.,the US Corps of Engineers and the USDA.
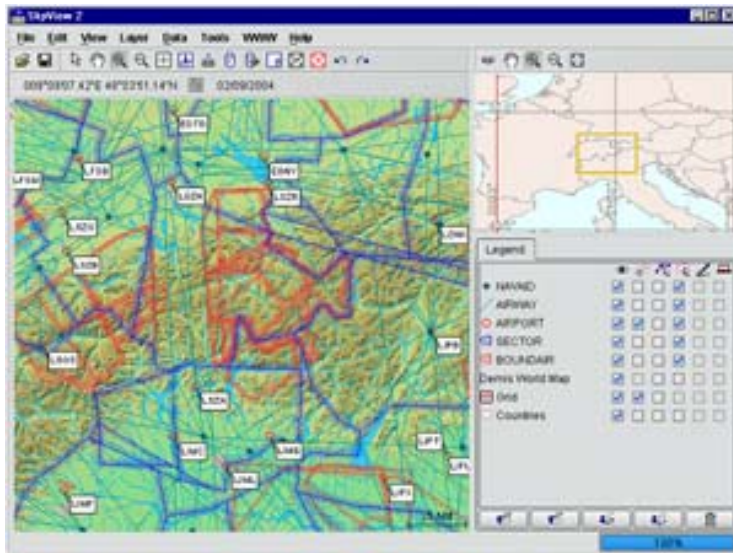
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The OGC Vision

Achieve the full societal, economic and scientific benefits of integrating location resources into commercial and institutional processes worldwide..

OGC CityGML Urban Model of Berlin

Source: www.3d-stadtmodell-berlin.de

EuroControl Aeronautical SkyView2 application

China Ministry of Land and Resources
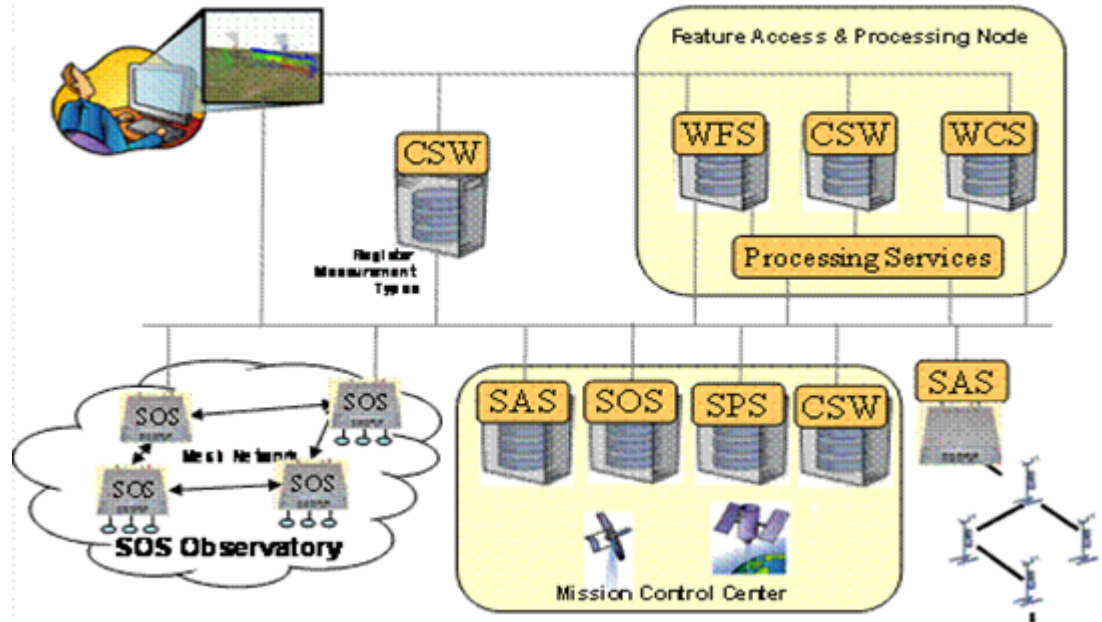
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« Core » OGC standards

- **Catalogue Service for the Web (CSW)**

- **Web Map Service (WMS)**
- **Web Feature Service (WFS)**
- **Web Coverage Service (WCS)**
- *Web Processing Service (WPS)*

- **Sensor Observation Service (SOS)**
- **Sensor Planning Service (SPS)**
- **Sensor Alert Service (SAS)**

- **Geography Markup Language (GML)**

November 2008 : 1st Workshop on the Use of GIS/OGC Standards in Meteorology

- Proposed by 11th Workshop on Operational Systems, ECMWF, 2007

- Jointly organised by ECMWF, UK Met Office and Météo-France at ECMWF

- More than 100 Participants from WMO, OGC, Eumetsat, and most of the advanced National Meteorological Services

- 4 working groups:
  - Roadmap,
  - GML/Coverages,
  - Web Map Services,
  - Security/access control.

- Presentations and working group reports available at http://www.ecmwf.int/newsevents/meetings/workshops/2008/OGC_workshop/Presentations/index.html

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Statement

After some WS implementations in Met services,

it appeared clearly that these implementations present a very high risk to be

non interoperable

IF

we don't agree on some best practices recommendations

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Out of the Roadmap Working group report…

- A real willingness from WMO community to embrace new requirements to reach out to other communities through OGC standards
- Agreed Actions included:

«

  – *Create OGC-WMO 'Memorandum of Understanding' to cover meteo & hydro domain working groups*

  – *…*

  – *Agree Domain WG charter & structure at OGC meeting in Athens (end March 09) …Met Domain WG 'ad-hoc'*

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Actions have been done :
OGC Met Domain WG created

- Charter drafted by Chris Little (UK Met Office) and Andrew Woolf (STFC RAL)
- Meteorology Domain Working Group created at the OGC Technical Conference in March 2009 in Athens
- Hydrology DWG created at the same meeting (Athens TC)
- Chris Little (UK Met Office) elected as chair MDWG (Athens TC)
- Marie-Françoise Voidrot elected as co-chair In June 2009 (Boston TC)
- Facilitated a Memorandum of Understanding between OGC and WMO
- A public email list open to everyone (OGC member or not) set up : https://lists.opengeospatial.org/mailman/listinfo/meteo.dwg
- A twiki space set up : http://external.opengis.org/twiki_public/bin/view/MeteoDWG/WebHome

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Actions have been done :
OGC - WMO MoU progress

- WMO CBS, Croatia, 2009-04: strong support for MoU, Secretary-General asked to pursue

- 2009-09 MoU reviewed by WMO Legal Section

- Several email exchanges in October to finalise wordings

- Reached stability Monday 2 November 2009, sign very soon

- Encompasses : Meteorology, Hydrology, Climatology, Oceanography
  - Agrees to liaison between WMO Secretariat staff and OGC staff
  - Allows technical experts on each others' expert teams
  - Flexible – details in Annex that can be changed
  - People involved agree to each others rules. E.g.:
    - OGC has strong IPR processes
    - WMO as UN body has some legal immunities
  - No money involved
  - Can issue joint press releases to advertise work

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Extension of the Met DWG to Met-Ocean DWG

- It was agreed at the Boston TC (June 09) to decide about the eventual extension of the Met DWG to oceanography at the Darmstadt TC (Sept 09)

- A motion submitted to vote from 2/09/09 to 09/09/09

- Unanimous consent to modify the Met DWG charter in order to encompass Meteorology and Oceanography into a unique MetOcean DWG under Earth Systems Sciences DWG coordination

- The charter has been updated and made available on the twiki.

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Out of the WMS Working group report

«

- *Working towards a "met(ocean) profile"of WMS*

- *Identified need to be agile in development*

- *Keep people engaged, test solutions in reality*

«

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06/08-09/01: Open Survey set up on OGC Twiki

- http://external.opengis.org/twiki_public/bin/view/MeteoDWG/MetQuestionnaire

- Survey announced by email on the OGC MDWG email list

- Survey presented at the EGOWS 2009 meeting

- On September 1st, there were 15 contributions :
  - 1 from an international organisation (EUMETSAT)
  - 6 from National Meteorological Services (DWD, Met Office, FMI, KNMI, Meteo-France)
  - 2 from a Regional Meteorological services (Servei Meteorològic de Catalunya (SMC), MeteoGalicia)
  - 4 from National environment Agencies or data centres
  - 1 from university department
  - 1 from private company
- A few more responses since September

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Synthesis => issues

- **A synthesis is available at :**
  http://external.opengis.org/twiki_public/bin/view/MeteoDWG/MetQuestionnaireSynthesis

- **10 Main Issues**
  1. **Time handling (12 times)**
  2. **Bounding Box, Anti-Meridian, poles & Southern Hemisphere, Projections (6 times)**
  3. **Vertical coordinates (5 times)**
  4. **Metadata, search and filtering (4 times)**
  5. **Performance (4 times)**
  6. **Asynchronous and dynamic delivery (3 times)**
  7. **Styling (3 times)**
  8. **Security (2 times)**
  9. **Integration with other systems, such as WCS, GRIB, OpenDap (2 times)**
  10. **Cross section description (1 time)**

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Process to « interoperate around interoperability »-1

- **Based on :**
  - **this synthesis,**
  - **the MDWG email list exchanges**
  - **the EGOWS 2009 conclusions**
  - **The 1st GIS/OGC standards applied to meteorology workshop working groups reports,**

  the twiki defines an open space to prepare the work on many issues

- **For instance :**
  * Time handling :
    http://external.opengis.org/twiki_public/bin/view/MeteoDWG/MetTimeDefinition
  * Weather exchange Models:
    http://external.opengis.org/twiki_public/bin/view/MeteoDWG/MetWeatherExchangeModels
  But also
  * Getcapabilities metadata:
    http://external.opengis.org/twiki_public/bin/view/MeteoDWG/MetGetCapabilitiesLayering
  * Controlled vocabulary :
    http://external.opengis.org/twiki_public/bin/view/MeteoDWG/MetOntologies

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Process to « interoperate around interoperability »-2

- Another initiative:

  Examples of specific multi-dimensional meteorological visualisations were presented to the WMS SWG to check if:

  – Can they be produced using 'Best Practices';

  – Some evolution of the standard is necessary or more effective.

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- Regular Teleconferences are planned to work on each issue (Mondays, every 2 weeks)
- To prepare for them, participants should identify :
  – the Met-Ocean needs concerning the issue
  – the different solutions with advantages and disadvantages….
  especially in term of performance!

MDWG telecon

9 Nov 09- 15 UTC

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Performance!

- Performance and efficiency have to be <u>a global permanent concern</u>:

    – Meteorology has a permanent high rate of update of data
    – Meteorology and oceanography involve large amounts of data
    - Telecoms are often a bottleneck for our customers

- Requirements, goals,metrics could be agreed in terms of frames per second for animation, seconds delay permitted for query retrieval or display …

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Is security an issue for MetOceanDWG?

- Security is not specific to MetOceanDWG

- Needs could be explicited towards the Security Domain Working Group in charge of these matters : authentification, authorization, controlled access to data and metadata…

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Interoperability Experiments

- Interoperability experiments can be set up and lead to contributions into the discussions, identification of new issues, or retex around performances

- Volunteers: http://external.opengis.org/twiki_public/bin/view/MeteoDWG/MetocWMS_IE_Volunteerings

- Environment Canada, Servei Meteorològic de Catalunya (SMC), DWD, Met Office, FMI, Météo-France, NOAA NGDC, Australian Bureau of Meteorology, University of Reading UK, Plymouth Marine Laboratory UK, MeteoGalicia, Magellium

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OGC Testbeds

Interoperability Program

Specification Program

Outreach and Adoption Program

- OWS testbeds are part of OGC's Interoperability Program, a global, hands-on and collaborative prototyping program designed to rapidly develop, test and deliver proven candidate specifications into OGC's Specification Program, where they are formalized for public release.

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OGC Web Services, Phase 7 (OWS-7)

- Request For Quotation & Call For Participation: 28 October 2009

- Bidder's Conference: 10 November 2009

- Proposal Due Date: 1 December 2009

- OWS-7 is organized in three activity "threads":
  - Sensor Fusion Enablement (SFE)
  - Feature and Decision Fusion (FDF)
  - Aviation

  Information at
    http://www.opengeospatial.org/standards/requests/60

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These are contributions to the WMS Working group report proposals

«

- *Working towards a "met(ocean) profile"of WMS*

- *Identified need to be agile in development*

- *Keep people engaged, test solutions in reality*

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Roadmap

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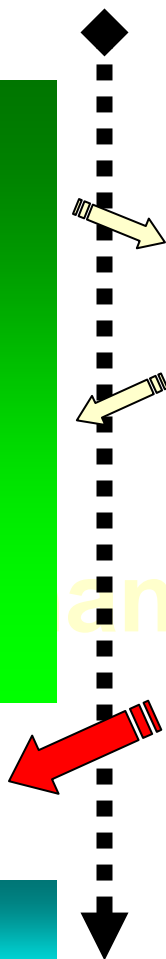
MetOcean DWG working proposal

WMS

1. **Time handling**

2. **Bounding Box, Anti-Meridian, poles and Southern Hemisphere, Projections**

3. **Vertical coordinates**

4. **Metadata, search and filtering**

5. **Asynchronous and dynamic delivery**

6. **Styling**

7. **Integration with other systems, such as WCS, GRIB, OpenDap**

8. **Cross section description (wait WMS 1.4?)**

WCS, WFS

Models

TO BE DEFINED

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Next steps

- **Met Ocean DWG telecon: 9 Nov 2009** (see twiki)

- **A 2nd Workshop on the use of GIS/OGC Standards in Meteorology will take place in Météo-France in Toulouse 23 – 25 November 2009 Registration possible until November 12th at :**
  - http://www.meteo.fr/cic/meetings/gis-ogc/index.html

  Toulouse France
  23-25 November 2009

- **Next OGC Technical Comittee in Mountain View, California 7-11 December 2009**

Registration at http://www.opengeospatial.org/event/0912tc

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Conclusion

- Public Websites :
    - OGC : (Standards, Programs, Press and Events announcements…)

    http://www.opengeospatial.org/

    - Met Ocean DWG Twiki :

    http://external.opengeospatial.org/twiki_public/bin/view/MetOceanDWG/WebHome

    - Met Ocean DWG email list :

    https://lists.opengeospatial.org/mailman/listinfo/meteo.dwg

- Meetings, Teleconferences

The working resources and means are there
The charter is done, the OGC-WMO MoU is nearly there
Just get involved and do some good work!

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